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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/796,027

03/10/2004

Dong-Jin Park

1568.1092

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05/09/2006

STEIN, MCEWEN & BUI, LLP  
1400 EYE STREET, NW  
SUITE 300  
WASHINGTON, DC 20005

EXAMINER

CHOWDHURY, TARIFUR RASHID

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 05/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/796,027

Applicant(s)

PARK, DONG-JIN

Examiner

Tarifur R. Chowdhury

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. **Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (AAPA) in view of Park et al., (Park), US 2004/0032385.**

4. The AAPA discloses and shows in Fig. 3, a field-sequential liquid crystal display panel, comprising:

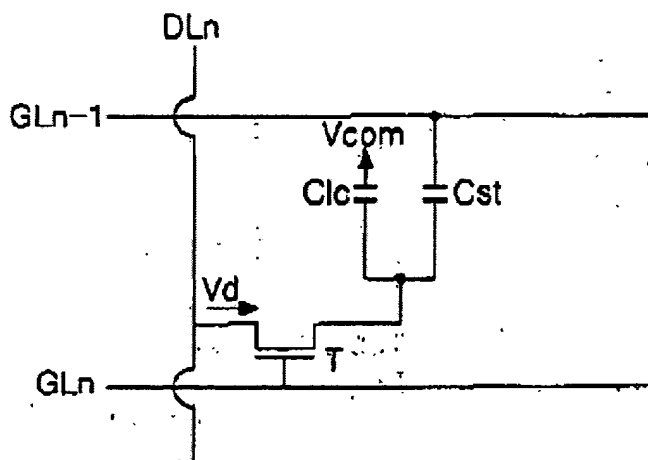
- thin film transistors (332);
- cell electrodes (E11R -----E31B) respectively coupled to the drains of the thin film transistors;
- scan electrode lines (LS1-----LSn) coupled to the gates of the thin film transistors;

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- data electrode lines (LD1-----LD3) coupled to the sources of the thin film transistors; and
- storage capacitors (C11R --- C31B).

The AAPA described in the instant application differs from the claimed invention because he does not explicitly disclose that the storage capacitors are provided between the cell electrodes and a respective one of the scan electrode lines.

**FIG.3**  
RELATED ART



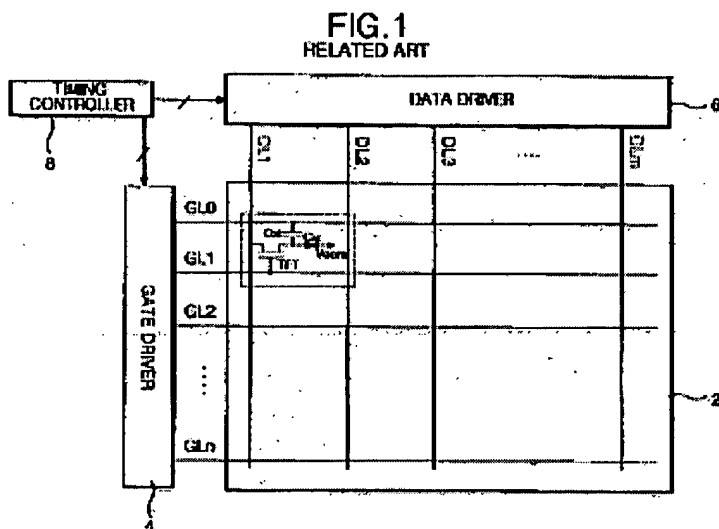
Park discloses a liquid crystal display panel having pixel electrode (applicant's cell electrode), scan electrode lines ( $GL_n$ ,  $GL_{n-1}$ ) and storage capacitors ( $C_{st}$ ) formed between the cell electrode and the previous scan electrode lines. He also discloses that such an arrangement implements gray levels (page 1, [0013]).

Park is evidence that ordinary workers in the art would find a reason, suggestion or motivation to form the storage capacitors between the cell electrodes and the scan electrode lines.

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Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the display panel of the AAPA by placing the storage capacitors between the cell electrodes and the scan electrode lines to implement gray levels.

Accordingly, claims 1 and 8 would have been obvious.



As to claims 2, 3, 5, 9 and 10, Park also shows in Figs 1 and 3 that the storage capacitors (Cst) are each provided between one of the cell electrodes and one of the scan electrode lines (GLn-1 for Fig. 3) that is adjacent to a scan electrode line coupled to the respective one cell electrode through one of the thin film transistors (TFT) and that the adjacent scan electrode line (GLn-1) and the scan electrode line (GL1) coupled to the respective one cell electrode are provided at opposite sides of the respective cell electrode.

As to claims 4 and 7, the AAPA also shows in Fig. 3 that display panel also comprising a data driver (55) and a scan driver (54) to drive the data electrode lines and the scan electrode lines respectively.

As to claims 6 and 11, the AAPA described in the instant application discloses the capacitance to be 0.06 PF (which is very close to *approximately* 0.07 PF). Further, considering that the AAPA does not explicitly disclose that the capacitance of the storage capacitor is approximately 0.07 PF to 0.2 PF, it is common and known in the art to set the capacitance of the storage capacitor within the claimed range to optimize the performance of the display panel and thus would have been obvious.

As to claim 12, the AAPA described in the instant application also discloses (page 3, paragraph 0014) that the voltage is sustained in the storage capacitors between an ending point of scanning each of the respective scan electrode lines and a starting point of a lighting time which is applied to ones of the cell electrodes.

As to claims 13-14, the AAPA also discloses and shows in Fig. 5 that the display panel further comprising a glass substrate (51), wherein the scan electrode lines are provided on the glass substrate and an insulating layer provided on the data electrode lines and wherein the cell electrodes are formed on the insulating layer (page 4, paragraph 0015).

As to claim 15, it is also clear from Fig. 4 of the AAPA that the storage capacitors are formed by arranging the cell electrodes so that upper portions of the cell electrodes are disposed under the scan electrode lines.

***Response to Arguments***

5. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

6. The prior arts made of record and not relied upon are considered pertinent to applicant's disclosure. Specifically, Applicant's attention is respectfully requested to the following cited prior arts.

- a) US 2003/0063074 (Fig.1) and
- b) US 2004/0160554 (Fig. 15)

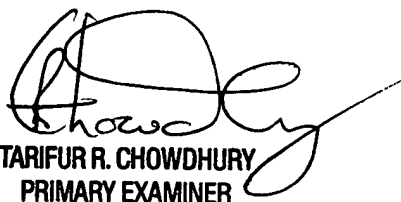
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tarifur R. Chowdhury whose telephone number is (571) 272-2287. The examiner can normally be reached on M-Th (6:30-5:00) Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TRC  
May 06, 2006



TARIFUR R. CHOWDHURY  
PRIMARY EXAMINER